APPENDICES

APPENDIX A. MAPS

NATURAL RESOURCES - NANTUCKET HARBOR

THE UNIVERSITY OF RHODE ISLAND
COASTAL RESOURCES CENTER AND
RI SEA GRANT PROGRAM

Graduate School of Oceanography
Narragansett, RI
Winter 1991

Mercator Projection
Scale 1:38,720 at Lat. 41 18'
North American Datum of 1983
(World Geodetic System 1984)

Source : NOAA Nautical Charts
13242 16th Ed, Nov. 18/89
13241 13th Ed, Sept. 9/89
This map is not to be used to determine
Mass. Wetlands Protection Act Jurisdiction.

Nautical Miles

0 .5 1.0

N

Shellfish Beds
(HPAC & SHAB designated, 1991)

Aquaculture Site

Salt Marshes & Tidal Flats

Shellfish Closure 1932

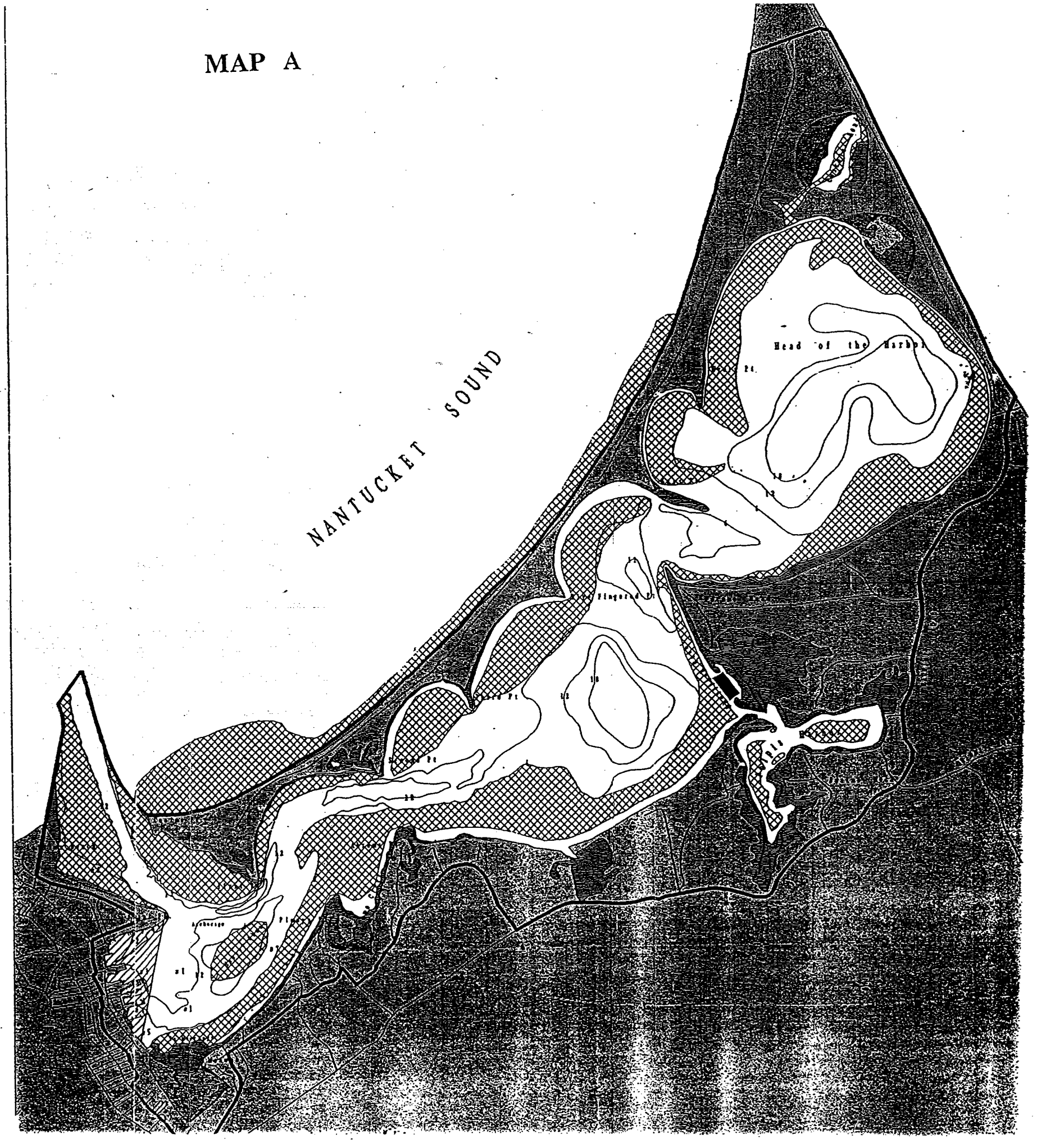
Harbor Boundary

-12- Bathymetry in Feet

This map is not to be used to determine Mass. Wetlands Protection Act Jurisdiction or for navigational purposes.

Maps by Daniel Martin, Marine Affairs, URI

MAP A



MADAKET HARBOR
WATER USES AND NATURAL RESOURCES

THE UNIVERSITY OF RHODE ISLAND
COASTAL RESOURCES CENTER AND
RI SEA GRANT PROGRAM

Graduate School of Oceanography
Narragansett, RI
Winter 1991

Mercator Projection
Scale 1:19,320 at Lat. 41 18'
North American Datum of 1983
(World Geodetic System 1984)

Source : NOAA Nautical Charts
13242 16th Ed, Nov. 18/89
13241 13th Ed, Sept. 9/89
Adapted From Public Hearings
On April. 9/91

Statute Miles

0 .5 1.0

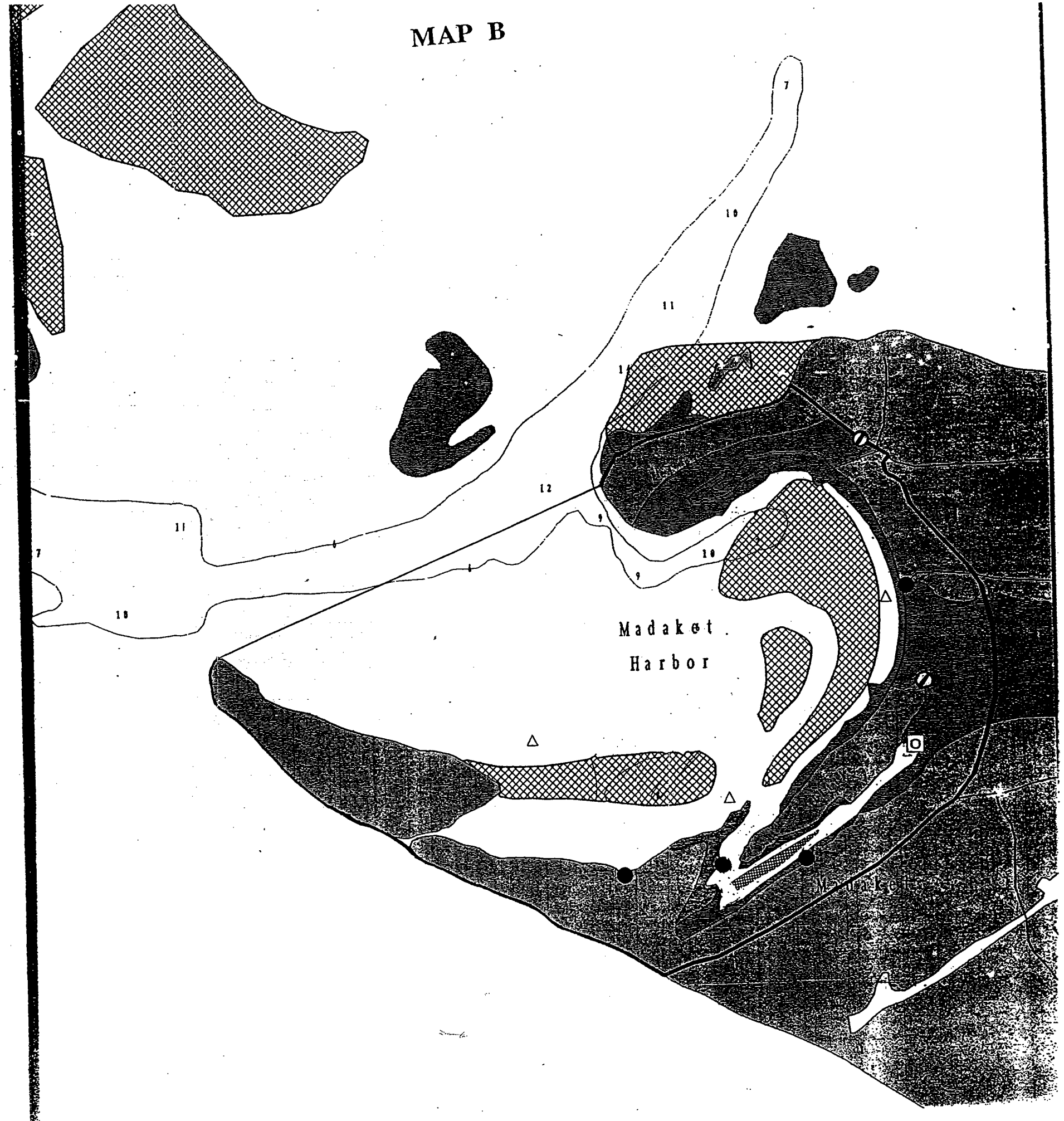
N

- Shellfish Beds (HPAC & SHAB designated, 1991)
- Proposed Mooring Field
- Salt Marshes & Tidal Flats
- Public Access
- Entrance to Private Cons. Land
- Windsurfing
- Sewage Pumpout Facility
- Harbor Boundary
- -6- Bathymetry in Feet

This map is not to be used to determine Mass. Wetlands Protection Act Jurisdiction or for navigational purposes.

Maps by Daniel Martin, Marine Affairs, URI

MAP B



WATER USE - INNER HARBOR

THE UNIVERSITY OF RHODE ISLAND
COASTAL RESOURCES CENTER AND
RI SEA GRANT PROGRAM

Graduate School of Oceanography
Narragansett, RI
Winter 1991

Mercator Projection
Scale 1:13,400 at Lat. 41 18'
North American Datum of 1983
(World Geodetic System 1984)

Source : NOAA Nautical Charts
13242 16th Ed, Nov. 18/89
13241 13th Ed, Sept. 9/89

Statute Miles

0 .25 .5

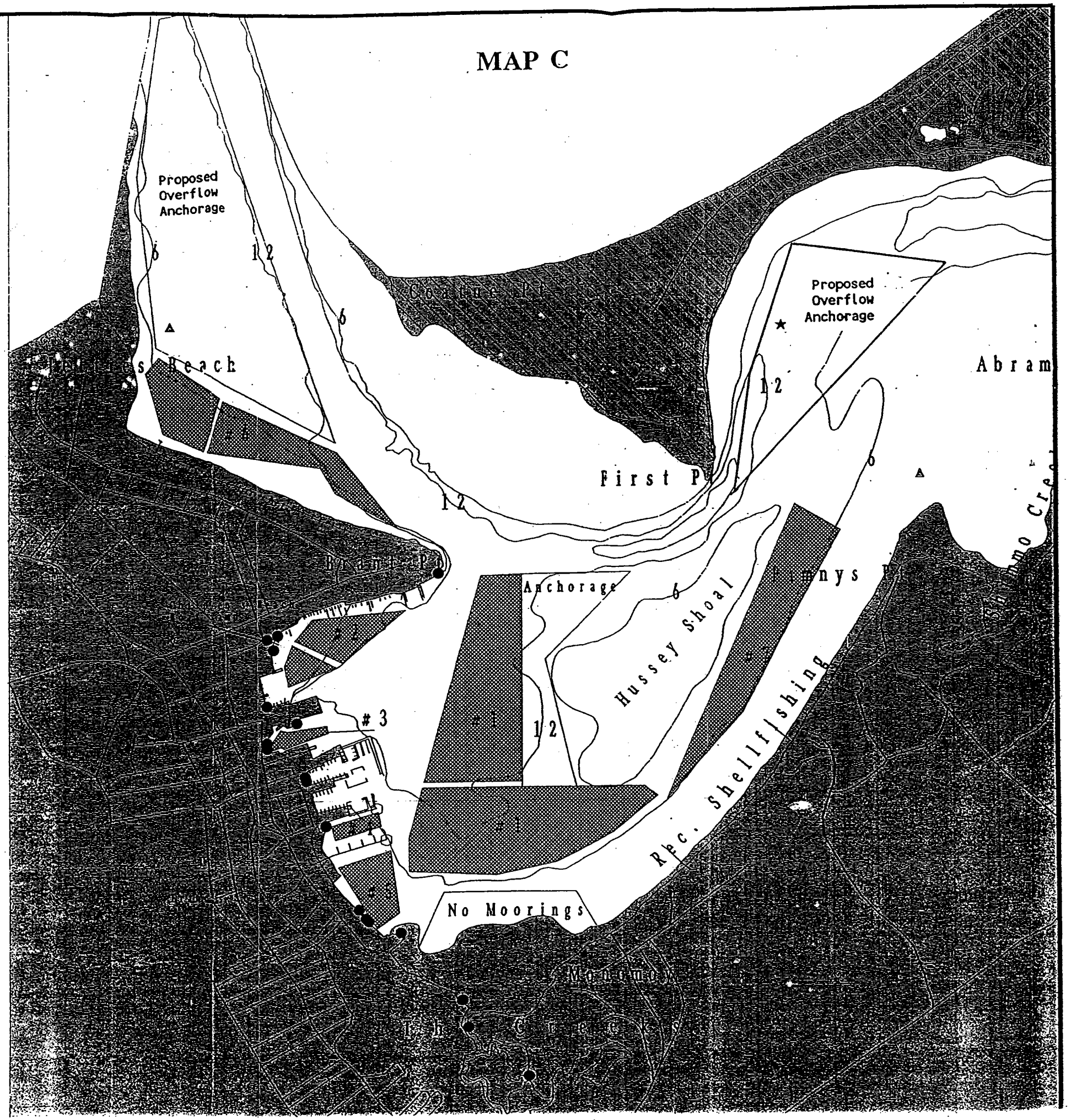
N

- Proposed Mooring Fields
- Storm Drain Outfalls
- ★ Waterskiing
- ▲ Windsurfing
- Sewage Pumpout Facility
- Private Conservation Land
- 12 Bathymetry in Feet

This map is not to be used to determine Mass. Wetlands Protection Act Jurisdiction or for navigational purposes.

Maps by Daniel Martin, Marine Affairs, URI

MAP C



WATER USE - NANTUCKET HARBOR

THE UNIVERSITY OF RHODE ISLAND
COASTAL RESOURCES CENTER AND
RI SEA GRANT PROGRAM

Graduate School of Oceanography
Narragansett, RI
Winter 1991

Mercator Projection
Scale 1:38,720 at Lat. 41 18'
North American Datum of 1983
(World Geodetic System 1984)

Source : NOAA Nautical Charts
13242 16th Ed, Nov. 18/89
13241 13th Ed, Sept. 9/89

Nautical Miles

0 .5 1.0

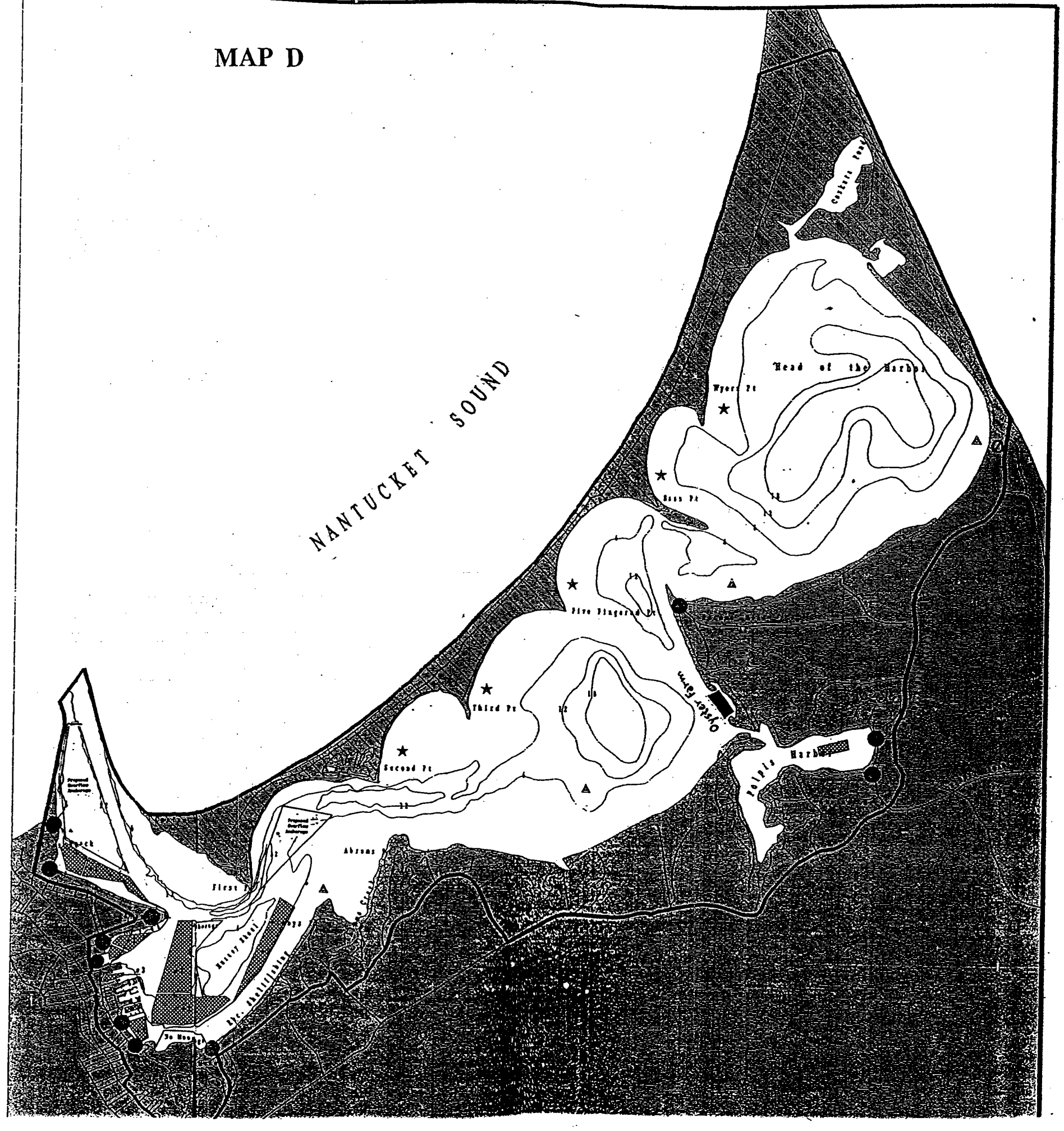
N

- Proposed Mooring Fields
- Aquaculture Site
- Public Access
- Entrance to Private Cons. Land (Oversand Vehicle Permit Req'd)
- Private Conservation Land
- ★ Waterskiing
- Windsurfing
- Harbor Boundary
- -12- Bathymetry in Feet

This map is not to be used to determine Mass. Wetlands Protection Act Jurisdiction or for navigational purposes.

Maps by Daniel Martin, Marine Affairs, URI

MAP D



Water Use Classifications - Nantucket Harbor

THE UNIVERSITY OF RHODE ISLAND
COASTAL RESOURCES CENTER AND
RI SEA GRANT PROGRAM

Graduate School of Oceanography
Narragansett, RI
Winter 1991

Mercator Projection
Scale 1:38,720 at Lat. 41 18'
North American Datum of 1983
(World Geodetic System 1984)

Source : NOAA Nautical Charts
13242 16th Ed, Nov. 18/89
13241 13th Ed, Sept. 9/89

Nautical Miles

0 .5 1.0

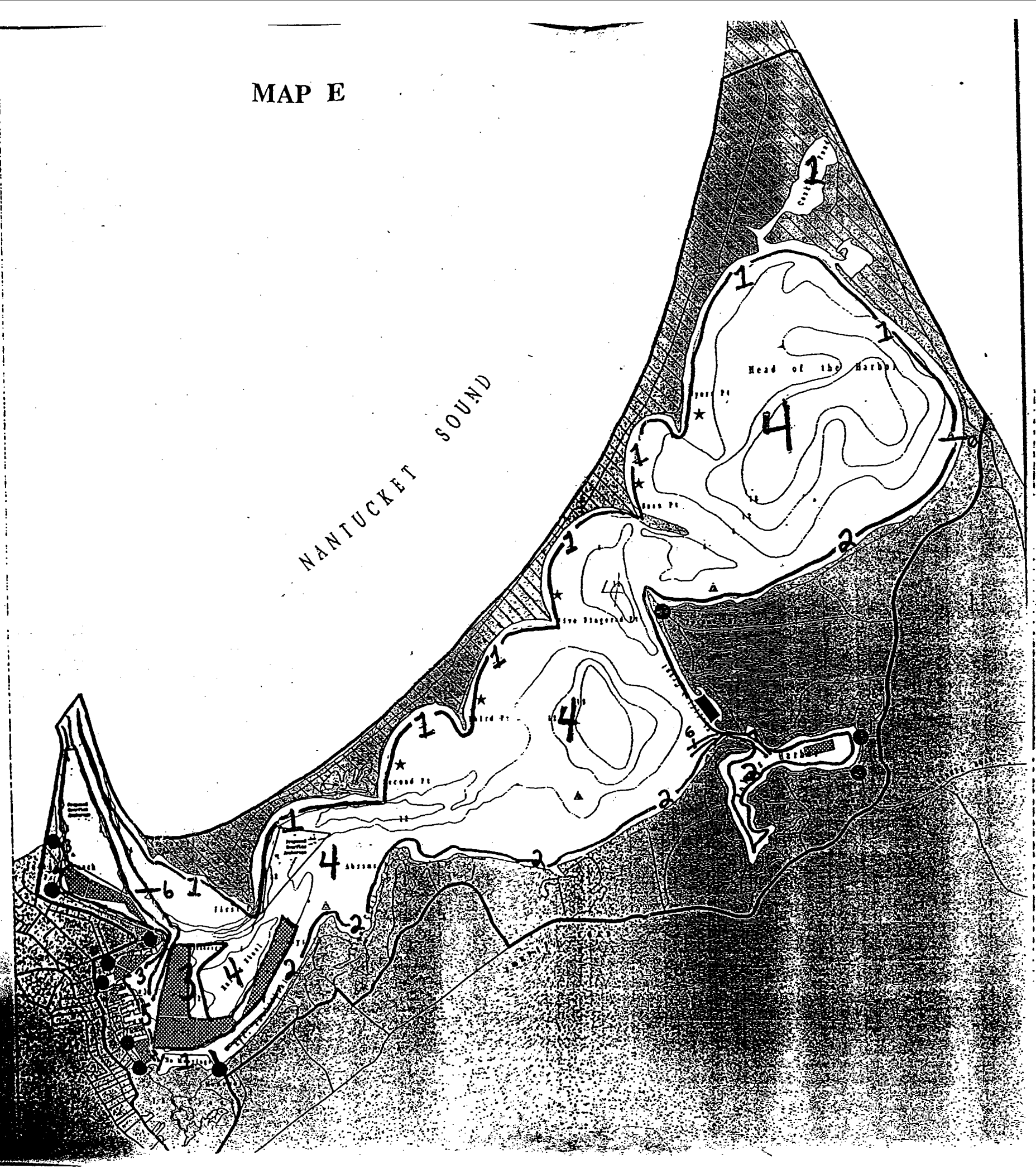
N

- Proposed Mooring Fields
- Aquaculture Site
- Public Access
- Entrance to Private Cons. Land (Oversand Vehicle Permit Req'd)
- Private Conservation Land
- Waterskiing
- Windsurfing
- Harbor Boundary
- 1-6 Water Use Classification

This map is not to be used to determine Mass. Wetlands Protection Act Jurisdiction or for navigational purposes.

Maps by Daniel Martin, Marine Affairs, URI

MAP E



MADAKET HARBOR

Water Use Classifications

THE UNIVERSITY OF RHODE ISLAND
COASTAL RESOURCES CENTER AND
RI SEA GRANT PROGRAM

Graduate School of Oceanography
Narragansett, RI
Winter 1991

Mercator Projection
Scale 1:19,320 at Lat. 41 18'
North American Datum of 1983
(World Geodetic System 1984)

Source : NOAA Nautical Charts
13242 16th Ed, Nov. 18/89
13241 13th Ed, Sept. 9/89
Adapted From Public Hearings
On April. 9/91

Statute Miles

0 .5 1.0

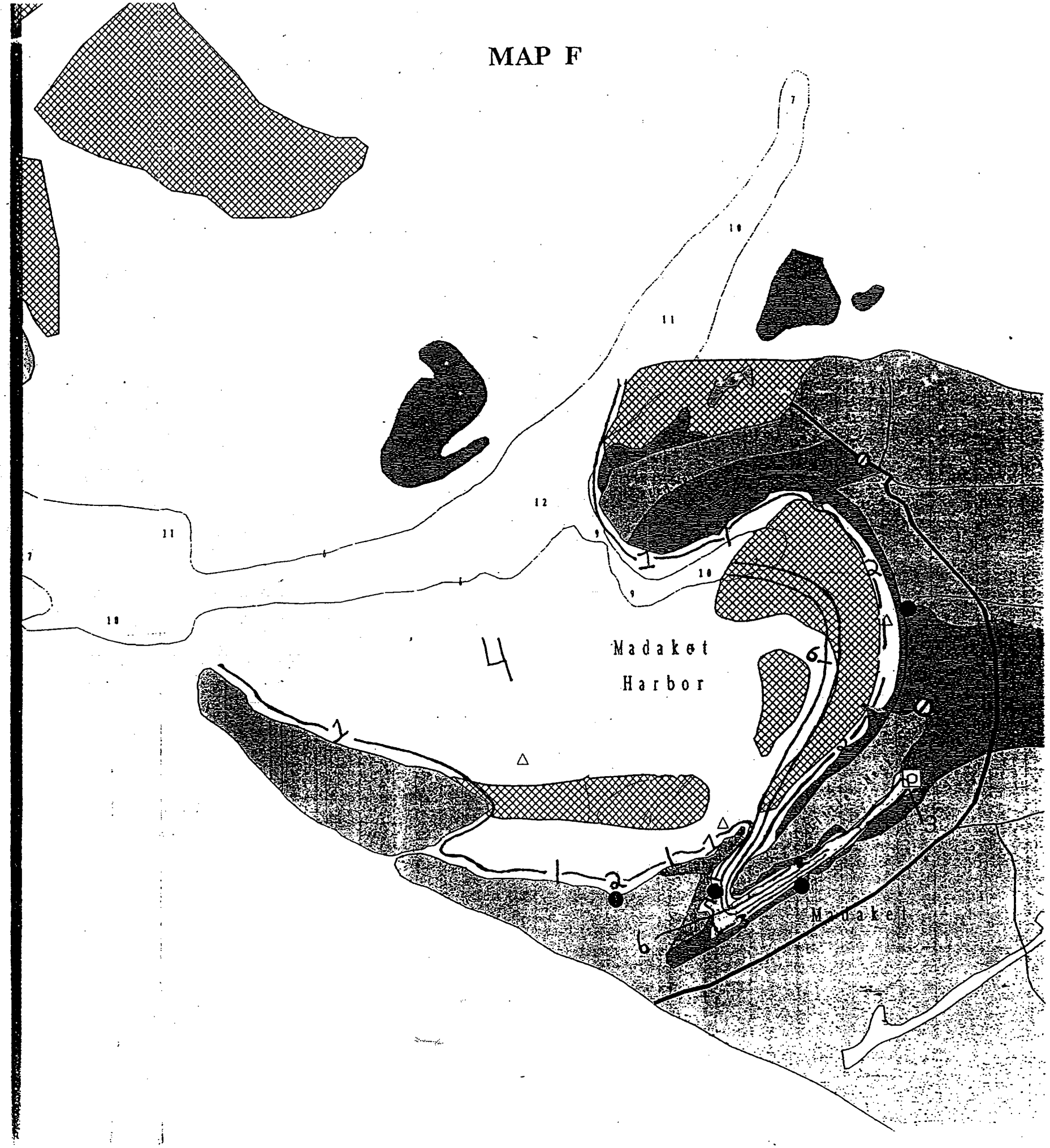
N

- Shellfish Beds (HPAC & SHAB designated, 1991)
- Proposed Mooring Field
- Salt Marshes & Tidal Flats
- Public Access
- Entrance to Private Cons. Land
- Windsurfing
- Sewage Pumpout Facility
- Harbor Boundary
- 1-6 Water Use Classification

This map is not to be used to determine Mass. Wetlands Protection Act Jurisdiction or for navigational purposes.

Maps by Daniel Martin, Marine Affairs, URI

MAP F



NANTUCKET AND MADAKET HARBORS ACTION PLAN

APPENDIX M

FIVE-YEAR PLAN AND ASSIGNMENT OF RESPONSIBILITY FOR ACTION ITEM IMPLEMENTATION

KEY: Year 1
Year 2
Year 3
Year 4
Year 5
Ongoing

	WATER QUALITY	Inv Boats with Heads/ Pumpout Incentives Prg	Fed No-Discharge Desig	W.Q. Quantif & Mgt Plan	Document NPS Pollution & Amend Bylaws & Regs	Finalize & Adopt Oil Spill Contingency Plan	Trash/Recycling/Hazardous Waste Barrels	Dredging Feasibility/ Water Circulation	Enforce Existing Regs	Boater Eduation	Curriculum Development
LOCAL											
Airport Commission											
Bd. of Selectmen			■					5			
Bd. of Health				3	2	■			O		
Chamber/Visitor Srv											
Co. Commissioners				3							
Cons. Commission				3	2				O		
Dept. Public Works					2		■				
Environmental Orgs											
Finance Dept/Assessor											
Fire Dept						■					
Fishing Assoc											
Fuel Suppliers											
Harbor Plng Adv Comm				3							
Historic Dist Comm											
Land Bank											
Marine Dept		1	■	3	2	■	■		O	■	
Nant Plng & Ec Dev Comm						■					
Pks & Rec Dept											
Planning Board					2				O		
Plumbing Insp									O		
Private Waterfront Ind		1					■			2	
R-O-W Committee											
School Dept											O
Shellfish Harbor Adv Bd				3							
STATE											
Dept Env Management								5			
Dept Env Protection							■		O		
Div Cons Services											
DFWELE									O		
Steamship Authority											
FEDERAL											
Army Corps Engineers								5	O		
Coast Guard							■		O		
EPA			■						O		

	NATURAL RESOURCE PRTC	Site New Dev to Protect Wetland Resources	Endorse Cons. Rest.	Pursue Open Space Prg	Designate Critical Res Areas and Habitat	Siting Docks/Piers	Enforce Existing Regs	Env Responsible Bldg Educ	Watershed Protection Educ
LOCAL									
Airport Commission									
Bd. of Selectmen			■						
Bd. of Health		■							
Chamber/Visitor Srv									2
Co. Commissioners									
Cons. Commission		■	■	O	2	1	O	3	
Dept. Public Works									
Environmental Orgs			■	O					2
Finance Dept/Assessor									
Fire Dept									
Fishing Assoc									
Fuel Suppliers									
Harbor Plng Adv Comm				O	2				2
Historic Dist Comm									
Land Bank				O					
Marine Dept									
Nant Plng & Ec Dev Comm					2			3	
Pks & Rec Dept									
Planning Board		■						3	
Plumbing Insp									
Private Waterfront Ind									
R-O-W Committee									
School Dept									
Shellfish Harbor Adv Bd					2				
STATE									
Dept Env Management									
Dept Env Protection							O		
Div Cons Services			■						
DFWELE									
Steamship Authority									
FEDERAL									
Army Corps Engineers									
Coast Guard									
EPA									

	COMM & REC FISHING	Fish & Shellfish Mgt Pln	Secure Funding for Shellfish Resource & Infrastructure Enhancement	Additional Slips & Off-loading through MCD Special Permits
LOCAL				
Airport Commission				
Bd. of Selectmen				
Bd. of Health				
Chamber/Visitor Srv				
Co. Commissioners				
Cons. Commission				2
Dept. Public Works				
Environmental Orgs				
Finance Dept/Assessor				
Fire Dept				
Fishing Assoc				
Fuel Suppliers				
Harbor Plng Adv Comm				
Historic Dist Comm				
Land Bank				
Marine Dept		~~3~~	O	
Nant Plng & Ec Dev Comm			O	
Pks & Rec Dept				
Planning Board				2
Plumbing Insp				
Private Waterfront Ind				
R-O-W Committee				
School Dept				
Shellfish Harbor Adv Bd		3		
STATE				
Dept Env Management				
Dept Env Protection				2
Div Cons Services				
DFWELE				
Steamship Authority				
FEDERAL				
Army Corps Engineers				
Coast Guard				
EPA				

	HARBOR SAFETY, NAVIGATION AND MOORINGS	COE App'd Mooring/Anch	Quantify Harbor Water Carrying Capacity	Restructure Mooring Fees	Rec Mrg Tackle Insp	Amend Wharves & Waterway Bylaw as Recommended	Enforce Existing Regs	Maintain Federal Navig Channel and Buoys	Minimize Use of Jet Skis	~~Est Waterfront Ent Acct~~	Harbor User Info Guide
LOCAL											
Airport Commission											
Bd. of Selectmen				■				O	■	2	
Bd. of Health			2								
Chamber/Visitor Srv											
Co. Commissioners											
Cons. Commission			2								
Dept. Public Works											
Environmental Orgs											
Finance Dept/Assessor										2	
Fire Dept											
Fishing Assoc											
Fuel Suppliers											
Harbor Plng Adv Comm											■
Historic Dist Comm											
Land Bank											
Marine Dept		■	■	■	■	■	O	O		2	
Nant Plng & Ec Dev Comm											
Pks & Rec Dept											
Planning Board											
Plumbing Insp											
Private Waterfront Ind											
R-O-W Committee											
School Dept											
Shellfish Harbor Adv Bd				■		■					
STATE											
Dept Env Management								O			
Dept Env Protection							O				
Div Cons Services											
DFWELE							O				
Steamship Authority											
FEDERAL											
Army Corps Engineers		2					O	O			
Coast Guard							O	O			
EPA											

	PUBLIC ACCESS	Condition Access through MCD Special Permits and Chapter 91	R-O-W Acquisition and Maintenance Program	Inv and Research Existing and Potential Sites	Sign Public Access Sites	Dev Public Access Guide
LOCAL						
Airport Commission						
Bd. of Selectmen			4			
Bd. of Health						
Chamber/Visitor Srv						3
Co. Commissioners						
Cons. Commission		O				
Dept. Public Works			4		O	
Environmental Orgs						
Finance Dept/Assessor						
Fire Dept						
Fishing Assoc						
Fuel Suppliers						
Harbor Plng Adv Comm						
Historic Dist Comm						
Land Bank						
Marine Dept						
Nant Plng & Ec Dev Comm						
Pks & Rec Dept						
Planning Board		O				
Plumbing Insp						
Private Waterfront Ind						
R-O-W Committee			4	2		3
School Dept						
Shellfish Harbor Adv Bd						
STATE						
Dept Env Management						
Dept Env Protection		O				
Div Cons Services						
DFWELE						
Steamship Authority						
FEDERAL						
Army Corps Engineers						
Coast Guard						
EPA						

	TOURISM AND RECREATION	Pub Service Facilities	Harbor Use Data Inventory	Desig Watersheet Overlay	Dev Waterfront Guide	Add Dinghy Dock Space	Promote Fishing
LOCAL							
Airport Commission							
Bd. of Selectmen							
Bd. of Health							
Chamber/Visitor Srv						■	2
Co. Commissioners							
Cons. Commission							
Dept. Public Works							
Environmental Orgs							
Finance Dept/Assessor							
Fire Dept							
Fishing Assoc							2
Fuel Suppliers							
Harbor Plng Adv Comm			2	■	1		
Historic Dist Comm							
Land Bank							
Marine Dept		O	2			■	X
Nant Plng & Ec Dev Comm							
Pks & Rec Dept		O					
Planning Board		O		1			
Plumbing Insp							
Private Waterfront Ind			2				
R-O-W Committee							
School Dept							
Shellfish Harbor Adv Bd							
STATE							
Dept Env Management							
Dept Env Protection							
Div Cons Services							
DFWELE							
Steamship Authority							
FEDERAL							
Army Corps Engineers							
Coast Guard							
EPA							

	DOWNTOWN WATERFRONT DIST	Desig Waterfront Overlay	Adopt Downtown Waterfront District	ID Scenic Views and Dev Protection Policies	Adopt Water-Dep Property Assessment Incentives	Commerc Fishing & Marine-Related Work Facility	Dev & Imp HDC Guidelines for Downtown Waterfront	Doc Maritime Resources	Fuel Off-loading Site	Use of Steamship Wharf
LOCAL										
Airport Commission									O	
Bd. of Selectmen						2			O	■
Bd. of Health										
Chamber/Visitor Srv										
Co. Commissioners										
Cons. Commission				1		2				
Dept. Public Works										
Environmental Orgs										
Finance Dept/Assessor					3					
Fire Dept										
Fishing Assoc						2				
Fuel Suppliers									O	
Harbor Plng Adv Comm		1	1							
Historic Dist Comm				1			3	5		
Land Bank										
Marine Dept						2				
Nant Plng & Ec Dev Comm					3	2				
Pks & Rec Dept										
Planning Board		1	1	1						
Plumbing Insp										
Private Waterfront Ind									5	
R-O-W Committee										
School Dept										
Shellfish Harbor Adv Bd						2				
STATE										
Dept Env Management										
Dept Env Protection										
Div Cons Services										
DFWELE										
Steamship Authority						2				O
FEDERAL										
Army Corps Engineers										
Coast Guard										
EPA										

APPENDIX B. GLOSSARY OF ACRONYMS

ACEC	Area of Critical Environmental Concern
ACOE	U.S. Army Corps of Engineers
BOH	Board of Health
CARD	Commercial Area Revitalization District
CDAG	Community Development Assistance Grant
CDF	Confined Disposal Facility
CFIP	Coastal Facilities Improvement Program
CRC	Coastal Resources Center
DCS	EOEA's Division of Conservation Services
DEM	Department of Environmental Management
DEP	Department of Environmental Protection (formerly called DEQE)
DEQE	Department of Environmental Quality Engineering (now called DEP)
DFWELE	Department of Fisheries Wildlife and Environmental Law Enforcement
DMF	Division of Marine Fisheries
DPA	MCZM's Designated Port Area
DWPC	DEP's Division of Water Pollution Control
EOCD	Executive Office of Communities and Development
EOEA	Executive Office of Environmental Affairs
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Act
FWPCA	Federal Water Pollution Control Act
HPAC	Harbor Planning Advisory Committee
HPGP	MCZM's Harbor Planning Grants Program
LOA	Length Over All
MCZM	Massachusetts Coastal Zone Management
MEPA	Massachusetts Environmental Policy Act
MGL	Massachusetts General Laws
NED	New England Division (of the Army Corps of Engineers)
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NSSC	National Sanitation Shellfish Commission
SADA	Special Assistance Development Area
SHAB	Shellfish Harbor Advisory Board
USGS	United States Geologic Survey
WHOI	Woods Hole Oceanographic Institution

APPENDIX C. DEFINITIONS

Anchoring - means to secure a vessel temporarily to the bottom of a water body by dropping an anchor or other ground tackle from a vessel.

Boatyard - means a facility whose function is the construction, repair, or maintenance of boats, which may include provisions for boat storage and docking while awaiting service.

Channel - means a navigable route for the passage of vessels, established by customary use or under the authority of federal, state, or municipal law.

CZM Program - means the Massachusetts Coastal Zone Management Program established pursuant to M.G.L. c. 21A and codified in 301 CMR 20.00 and as may be amended hereafter.

Department - means the Department of Environmental Protection.

Dredged Material - means rocks, bottom sediment, debris, refuse, plant or animal matter, or other materials which are removed by dredging.

Dredging - means the removal of materials including but not limited to rocks, bottom sediment, debris, sand, refuse, plant or animal matter, in any excavating, cleaning, deepening, widening, or lengthening, either permanently or temporarily, of any flowed tidelands, rivers, streams, ponds, or other waters of the Commonwealth. Dredging shall include improvement dredging, maintenance dredging, excavating and backfilling or other dredging and subsequent refilling.

Fairway - means any locally designated and/or maintained water areas reserved for unobstructed movement of vessels.

Harbor Line - means any line established by the legislature pursuant to M.G.L. c.91.s.34.

Harbor Plan - means a document (in words, maps, illustrations and other media of communication) setting forth, among other things: a coastal community's objectives, standards, and policies for guiding public and private utilization of land and water bodies within a defined harbor planning area; an implementation program which specifies the legal and institutional arrangements, financial strategies, and other measures that will be taken to achieve the desired sequence, patterns and characteristics of development and other human activities within the harbor area, which is financed wholly or in part by the Grantor who administers the Harbor Planning Grants Program consistent with the intent of the legislation expressed under Chapter 768 of the Acts of 1987, which

amended Chapter 21F of the General Laws, to improve coastal facilities and prepare and implement harbor plans.

Harbormaster - means the individual appointed pursuant M.G.L. c.102.s.19 or otherwise provided by law.

Marina - means a berthing area with docking facilities under common ownership or control and with berths for ten or more vessels, including commercial marinas, boat basins, and yacht clubs. A marina may be an independent facility or may be associated with a boatyard.

Mooring - means a place where buoyant vessels are secured to the bottom of a water body by mooring tackle in accordance with the Nantucket Wharves and Waterways Code and has received a permit from the Town of Nantucket.

Mooring Area - means any area designated by this Harbor Management Plan for the location of moorings.

Mooring Tackle - means the hardware used to secure the vessel at a mooring and which is kept in place seasonally.

Non Water-dependent Use - means a use which has not been found to be water-dependent or accessory to a water-dependent use pursuant to 310 CMR 9.12(2)-(3).

Ocean Sanctuary - means an ocean area wherein certain restrictions on activities apply, as defined in M.G.L. c.132A.s.13 and DEM regulations at 302 CMR 5.00.

Public Way - means a road, street, or highway for vehicular use open to the public at large and for which a public agency is responsible for maintenance and repair.

Secretary - means the Secretary of the Executive Office of Environmental Affairs.

Shellfish - means the following species: Bay Scallop, Blue Mussel, Ocean Quahog, Oyster, Quahog, Razor Clam, Sea Clam, Sea Scallop, and Soft Clam.

State Agency - means any agency, department, board, district, commission, or authority of the Commonwealth.

Tidelands - means present and former submerged lands and tidal flats lying between the present or historic high water mark, whichever is farther landward, and the seaward limit of state

jurisdiction. Tidelands include both flowed and filled tidelands, as defined herein.

Transient Anchorage - means any area reserved and designated by the Town of Nantucket Harbor Management Plan, as amended from time to time, for the exclusive short-time use by a person who does not typically lease from a commercial mooring operator.

Water-dependent Use - means a use which requires direct access to or location in tidal or inland waters, and therefore, cannot be located away from said waters.310 CMR 9.12(2).

Waterway - means any area of water and associated submerged land or tidal flat lying below the high water mark of any navigable river or stream, any Great Pond, or any portion of the Atlantic Ocean within the Commonwealth, which is subject to these regulations at 310 CMR 9.04.

Vessel - means every description of watercraft, other than a seaplane on water, used or capable of being used, as a means of transportation on water. Specifically excluded by this definition are floating homes or houseboats.

APPENDIX D. HARBOR MANAGEMENT AUTHORITIES and LAWS

An overview of federal, state, and local laws and regulations which pertain to both Nantucket and Madaket Harbors. (This overview is not intended to be used in place of any original citation of law or regulation, and there may be additional governing laws.

Subject	Law	Description
Tidelands Protection	FWPCA Sect. 402	Permit process for discharge of any pollutant. This includes municipal and industrial stormwater discharges.
	FWPCA Sect. 404	Permit process for discharge of dredge or fill material into navigable waters at specified disposal sites. Determination of effect on municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas.
	Mass G.L. Ch. 91 Sect. 14	No structure, dredge or fill may be licensed on private or commonwealth tidelands unless they are necessary to accommodate a water dependent use and for commonwealth tidelands, also provide greater public benefit to rights of public. Written determination of approval by DEP required following public hearing.
	Mass G.L. Ch. 130 Sect. 105	Protection of coastal wetlands promoting public safety, health and welfare, protecting public and private property, wildlife and marine fisheries. DEM review orders regulating use or alterations.
	Mass G.L. Ch. 131 Sect. 140 and Nantucket Code 136	Protection of flood plains, seacoasts, and other wetland resources from physical or structural alteration. Also considers impact to water supply, ground water, flood control, storm damage and pollution prevention, protection of shellfish beds, fisheries, and wildlife habitats. Administered by the local Conservation Commission.
Occupancy of Vessels	Nantucket Code 137-14	No vessel carrying overnight passengers may remain in Nantucket Harbor unless equipped with legally approved waste and sewage treatment equipment or holding tanks.

APPENDIX D. HARBOR MANAGEMENT AUTHORITIES and LAWS (continued)

Subject	Law	Description
Occupany of Vessels (cont'd)	Nantucket Board of Health 31.00	Resident vessels, rafts, floats must have written permission from BOH to stay in Nantucket, Polpis, or Madaket harbors, creeks or estuaries.
Oil/Hazardous	FWPCA Sect. 311	Regulates cleanup of discharge oil/ hazardous substances which may affect natural resources or present imminent danger to public health, including but not limited to fish, shellfish, wildlife, shorelines, and beaches. Requires immediate notification of discharge to U.S. Coast Guard by owner/operator.
	FWPCA Sect. 401	Licensing process for any activity which may result in any discharge into navigable waters. Army Corps of Engineers determine effect discharge will have on applicable water quality standards.
	Mass G.L. Ch.21 Sect. E	DEP has authority to take steps to protect releases of oil and hazardous materials.
Moorings	Mass G.L. Ch. 90B	Authorizes cities and towns to regulate boats in municipal waterways. Board of Selectmen may establish requirements for boat moorings and operation. This applies to both public and private moorings in municipal waters.
	Mass G.L. Ch. 91 Sect. 10	General care and supervision of harbors and tide waters within the Commonwealth by DEP to insure harbor navigability and undisturbed channel flow.
	Mass G.L. Ch. 91 Sect. 10A	Harbormaster is employed by town to authorize by permit the mooring on a temporary basis of floats and rafts.
Vessel Discharge	FWPCA Sect. 312	Requires marine safety device (MSD) for all vessels with <u>installed</u> marine heads. Allows discharge of treated sewage from MSD's Type I and Type II, within U.S. territorial waters (3 mile offshore boundary).

APPENDIX D. HARBOR MANAGEMENT AUTHORITIES and LAWS (continued)

Subject	Law	Description
Vessel Discharge (Cont'd)	Mass G.L. Ch. 90B Sect. 12	Harbormasters, local and state police, and DFWLE officers can inspect any vessel with a motor for compliance of safety codes.
	Mass G.L. Ch. 90B Sect. 15B	Authorizes cities and towns to regulate boats in municipal waterways.
	Mass G.L. Ch. 130 Sect. 23	Penalizes for discharge of oil, poisonous substances, heated effluent or use of explosives in coastal waters which are injurious to fish, fish spawn, or seed.
	Mass G.L. Ch. 91 Sect. 59B	Division of Water Pollution Control will not issue a license for a marina unless they provide 1) adequate pump-out facilities, 2) dockside toilet facilities, and 3) trash receptacles.
	Nant. Code Ch. 137-11	Dumping or discharge of oil, treated or untreated sewage, dead fish, or refuse of any kind in Nantucket waters, shores or beaches is prohibited.

APPENDIX E - MOORING DATA AND RECOMMENDATIONS

I. Mooring Fee Comparison as of February 1991

NANTUCKET	1) Commercial $75 2) All Others $10
BARNSTABLE	By weight of mooring: 1) < 100 pounds $20 2) 100 - 199 pounds $30 3) ≥200 pounds $40
CHATHAM	Flat Fee - $20 + $1/foot > 20'
DENNIS	Flat Fee - $100
EDGARTOWN	1) Rental/Commercial $150 2) All others $ 50/location
FALMOUTH	1) Private $30 2) Yacht Club $40 3) Commercial $50
PROVINCETOWN	No Fee
VINEYARD HAVEN	1) Commercial $ 25 2) Resident - First mooring $ 25 Second mooring $ 50 3) Non Resident $100 4) Town owned seasonal rentals $600 - summer $200 - winter
BLOCK ISLAND, RI	1) Resident - domiciled and/or real property taxpayer and boat registered in RI with New Shoreham home port. $50 + $2.50/foot > 26' 2) Non resident - does not meet resident definition $400 + $5/foot > 26' 3) Yacht Club - $750 4) Town maintains own moorings for transients - $25/night
JAMESTOWN, RI	1) Commercial - $100 2) Resident - $ 50 + $2/foot > 25' 3) Non-resident - $100 + $2/foot > 25'
NEWPORT, RI	By weight of mooring: 1) Resident Private - $ .20/pound 2) Resident Commercial - $ .50/pound 3) Non-Resident Private - $ .70/pound 4) Non-Resident Commercial $ 2.50/pound

NOTE: Although there are different laws and regulations in Massachusetts and Rhode Island, they have both been listed for comparison purposes. This informaton obtained by phone survey, February 1991.

APPENDIX E - MOORING DATA AND RECOMMENDATIONS (continued)

II. Estimated Existing Mooring Field Boats Compared to Those Proposed for Nantucket and Madaket Harbors

Nantucket Harbor

Number of Boats in Mooring Fields		Downtown Mooring Acreage		
Boat Size	Number of Boats	Field	Current	Proposed
No length	33	1	62.0 acres	82.0 acres
≤ 15'	104	2	4.5 acres	11.6 acres
≤ 20'	244	3	1.5 acres	1.5 acres
≤ 30'	265	4	2.9 acres	2.0 acres
≤ 40'	151	5	17.0 acres	5.8 acres
≤ 50'	76	6	28.0 acres	28.0 acres
50'	7	7	proposed	28.0 acres
Total	880	Total	115.9 acres	158.9 acres

Average Boats Per Acre, Overall - Current = 10.1 Proposed = 8.5

Average Boat Size Areas 1, 2, 3, 4, and 5 = 24.3'
Average Boat Size Area 1 = 35.5'
Average Boat Size Areas 2, 3, 4 and 5 = 19.7'

Other Mooring Areas

Total registered moorings for Madaket, Polpis Harbor, Wauwinet, Quaise, and Pocomo is approximately 190, with half listed for boats under 20' loa.

Useable area in Hither Creek ≈á1.5 acres. This is sufficient space for 30 twenty-foot boats on a single-point mooring (SPM) with a 30% overlap, or 65 boats moored fore and aft.

A one acre mooring field in Polpis Harbor is sufficient space for 20 twenty-foot boats on a SPM with a 30% overlap, or 40-45 boats moored fore and aft.

APPENDIX E. MOORING DATA AND RECOMMENDATIONS (continued)

III. Recommendations for Nantucket and Madaket Harbor Moorings

1. Apply to the U. S. Coast Guard to amend the boundaries of the present General Anchorage area to match proposed anchorage areas. Ensure areas remain reserved for anchoring and not for placement of moorings.

2. Proposed Mooring Area #1 should be reserved for boats greater than 20' loa. Any boat presently in the General Anchorage area that is less than 20' should be relocated.

3. Proposed Mooring Area #1 should utilize a 2.5 : 1 ratio for length of tackle compared to water depth and a 30% overlap, except in the northern most 10 acres where a 3 : 1 ratio and no overlap should be utilized due to fluctuating tidal currents. Boats in the remaining 70 acres should be separated based on size and type, i.e.. < 30' sail, < 30' power, < 40' sail, etc. A thirty foot fairway should be preserved between each section.

4. Proposed Mooring Areas # 3, 4, and 5 should be reserved for boats less than 20' loa. (About one-third of area 3 can accommodate boats up to 30' loa). Best use would be to have all boats under 20' loa removed from the water and stored in dry-stack storage or on trailers. Insufficient boat ramps, lack of dry-stack storage, and increased costs will prevent the complete achievement of this goal, however, every effort should be made to move in this direction.

   These areas can all safely use fore and aft mooring technology to increase density and save other space for larger vessels. Densities up to 45 boats per acre are achievable under this method, compared to 25-2[illegible] per acre with SPMs and a 30% overlap.

5. Proposed Mooring Area # 2 can be partitioned into three sections. The northeast portion can effectively handle boats up to 30' loa and the other sections, off Children's Beach and the Yacht Club should be limited to boats less than 20' loa.

6. Proposed Mooring Area # 6 can be partitioned into several sections, based on depth of water and the need for space for boats of certain size categories. The SPM method, with a 30% overlap would be appropriate for this location.

7. Proposed Mooring Area # 7 should be established on an as-needed basis, working from the southwest to the northeast.

8. The mooring field in Polpis Harbor should be limited to one acre.

9. The moorings in Hither Creek should be aligned so as to allow for a fairway from Madaket Marine to the mouth of the creek. Space for moorings in the creek would benefit from the application of fore and aft mooring technology.

APPENDIX E. MOORING DATA AND RECOMMENDATIONS (continued)

14. Recommended boat density in moorings:

Length	Water Depth	Chain Scope	Radii	#/Acre
20'	≤ 4'	10'	30 + 10	27
20'	≤ 4'	10'	30 + 15	21.5
20'	≤ 4'	10'	30 + 30	12.1
20'	5'	2.5 : 1	32.5 + 10.8	23.2
30'	10'	2.5 : 1	55 + 18.3	8.1
30'	12'	2.5 : 1	60 + 20	6.8
30'	12'	2.5 : 1	60 + 30	5.4
30'	12'	3 : 1	66 + 22	5.6
30'	12'	3 : 1	66 + 33	4.4
40'	15'	2.5 : 1	77.5 + 25.8	4.1
40'	15'	2.5 : 1	77.5 + 38.75	3.2
40'	15'	3 : 1	85 + 28.3	3.4
40'	15'	3 : 1	85 + 42.5	2.7
50'	15'	2.5 : 1	87.5 + 29.2	3.2
50'	15'	2.5 : 1	87.5 + 43.75	2.5
50'	15'	3 : 1	95 + 31.7	2.7
50'	15'	3 : 1	95 + 47.5	2.1
50'	15'	3 : 1	95 + 95	1.2
65'	15'	3 : 1	110 + 110	0.9

Depth	Scope	Boats Per Acre by Size + 30% Overlap				
		≤20'	≤30'	≤40'	≤50'	≤65'
10'	2.5 : 1	12.1	8.1	5.7	4.3	3
12'	2.5 : 1	9.8	6.8	5	3.8	2.7
15'	2.5 : 1	7.4	5.4	4.1	3.2	2.3
10'	3 : 1	9.8	6.8	5	3.8	2.7
12'	3 : 1	7.8	5.6	4.2	3.3	2.4
15'	3 : 1	5.8	4.4	3.4	2.7	2

Approximate Area of Proposed Mooring Fields

Area 1 ≈82 acres ≈272 boats ≤30' + ≈123 boats ≤40' + ≈32 boats ≤50'
Area 2 ≈11.6 acres ≈47 boats ≤30' + ≈123 boats ≤20'
Area 3 ≈1.5 acres ≈40 boats ≤20'
Area 4 ≈2 acres ≈6 boats ≤30' + ≈35 boats ≤20'
Area 5 ≈5.8 acres ≈156 boats ≤20'
Area 6 ≈28 acres ≈14 boats ≤50' + ≈27 boats ≤40' + ≈32 boats ≤30' + ≈372 boats ≤2[illegible]
Area 7 ≈28 acres ≈274 boats ≤30' or ≈190 boats ≤40'
Total Mooring Field Area ≈158.9 acres

Approximate Area of Proposed Anchorages
Main Anchorage approx. 28 acres
Overflow Anchorage approx. 100 acres

1272 capacity
1500 permits available

APPENDIX E. MOORING DATA AND RECOMMENDATIONS (continued)

10. All mooring areas that encroach upon shellfish beds must comply with the seasonal removal of moorings as outlined in current town by-laws and/or regulations and/or policies of SHAB and the Harbormaster.

11. Moorings in other locations should be limited to shorefront property owners, or a specified number per waterfront access point, based on available parking.

12. Accurate data must be collected and verified prior to modifying current mooring patterns. The 1991 boating season should be used to match existing Marine Department mooring records with the numbers of moorings actually in place and those with boats on them. This data is critical for effective planning.

APPENDIX F
Nantucket Government Institutions

Elected Officials
Town Moderator

Board of Selectmen*
Town Clerk
Town Treasurer
School Committee
Planning Board
Shellfish & Harbor Advisory Board*
Historic District Commission*
Housing Authority
Nant. Land Bank Commission*
Nantucket Water Commission
Siasconset Water Commission
Woods Hole, Martha's Vineyard and Nant. Steamship Auth. Finance Advisory Board Member*

Appointed Officials
Executive Secretary
Finance Director*
Assessor
Business Administrator
Collector
Fire Chief/Petroleum Inspector/ Forest Planning Wardens
Gas/Plumbing Inspector
Health Insp./Hazardous Waste Officer/* Insp. of Animals/Insp. of Sanitation/ Rodent Control Officer/Sealer of Weights and Measures/Collector of Transient Vendor Tax/Municipal Right to Know Officer
Marine Superintendent/Shellfish Wardens*
Our Island Home Administrator
Police Department
Public Works Department*
Town Accountant
Town Counsel
Veteran's Agent
Wiring Inspector
Woods Hole, Martha's Vineyard and Nant. Steamship Authority Member

Appointed Committees (Definite Term
Airport Commission*
Nant. Arts Lottery Council
Capital Program Committee
Council for Human Services
Conservation Commission*
Council on Aging
Finance Committee
Handicap Commission
Harbor Planning Advisory Committee*
Park and Recreation Commission*
Personnel Board
Planning & Economic Dev. Commission*
Public Relations Committee*
Registrars of Voters
Visitor Services Committees*
Zoning Board of Appeals*

Appointed Committees (Indefinite Term)
Biodegradable Packaging Bylaw and Regulation Committee
Bulletin Board Etiquette Committee
Citizen's Town Govt. Review Committee
Cogeneration Study Committee
Computer Use Committee
Designer Selection/Composting Committee
Emergency Planning Committee
Housing Partnership
Madaket Pier & Bridge Adv. Committee*
Our Island Home Advisory Committee
Adv. Committee of Non-Voting Taxpayers
Proprietors Charter Committee
Proprietors Road Committee
Pond Management Committee
Sewer Project Advisory Committee
Town Space Needs Committee
Traffic Safety Advisory Committee
Transportation Systems Working Committee
Recycling Committee

*indicates involvement with Nantucket's harbors

APPENDIX G

Recommendations for Changes to Chapter 137 of the Town Code - Town Wharves and Waterways

Section	Change
137-2 B.	**Replace** "from Brant Point ...Jackson's Point inward" with "without the permission of the Marine Department."
137-2	**Add** - Item F. - A time limit section for use of town facilities.
137-3 I.	Verify this with town solicitor. Believe it is legal for aluminum boats 65 feet in length or greater to continue to use tin based bottom paints.
137-4 B.	**Add** - A final phrase, "and without prior payment of the mooring fee".
137-4 C.	Comment on information on mooring application. **Add** requirement for completing entire application (answer all questions). **Add** note that applications may be voided and moorings permits not issued or invalidated if application is incomplete or false.
137-4 D.	**Insert** "without permission from the Marine Department and" after the word "town".
137-4 F.	**Reword** paragraph to: 1) make inspection mandatory; 2) identify inspection cycle; and 3) provide for authorized inspectors.
137-4 H.	**Reword** paragraph to: 1) allow all currently permitted moorings to retain a mooring location; 2) delete sentence beginning "this section preempts..." not possible to set limits on the power of legally elected future legislative bodies. In addition the owners of mooring tackle have no rights to a specific location, only to the ownership of the tackle.
137-4 I.	**Add** - paragraph addressing mooring field safety and density. Numbers of boats allowable in any mooring area must be under the control of the Marine Department.
137-4 J.	**Add** - paragraph addressing abandonment of moorings.
137-4 K.	**Add** - paragraph addressing the transferability of moorings.
137-5 A.	**Add** - sentences identifying renewal time period and renewal process.
137-5 D.	**Add** - paragraph requiring a boat, or intent to have a boat, prior to issuing a mooring permit.

APPENDIX G (continued)

137-5 E.	**Add** - paragraph requiring all moorings to be in compliance with existing state, federal laws and permit requirements, if applicable.
137-10 B.	**Change** "one (1) hour" to "fifteen (15) minutes".
137-12	**Modify** this paragraph or **draft new** ones to account for jet skis and wind surfers/sailboards.
137-14	**Add** time limits for transients, providing space is available. Should consider separate permit for year-round/seasonal live-aboards.
137-18	Possible penalties for violations may also include loss of boating privileges in Nantucket waters.

APPENDIX H

REQUIREMENTS FOR NO-DISCHARGE APPLICATION TO U.S. EPA UNDER SECTION 312 F(3) PL 97-117

1. Certification that the protection and enhancement of the waters described in the petition require greater environmental protection than the applicable Federal standard.

2. A map showing the location of commercial and recreational pump-out facilities.

3. A description of the location of pump-out facilities within waters designated for no discharge.

4. The general schedule of operating hours of the pump-out facilities.

5. Draught requirements on vessels that may be excluded because of insufficient water depth adjacent to the facilities.

6. Information that the treatment of wastes from such pump-out facilities is in conformance with Federal law.

7. Information on vessel population and usage in the subject waters.

Application must include:

@ Drinking water intakes.
@ Aquatic sanctuaries.
@ Identifiable fish-spawning and nursery areas.
@ Identify areas of intensive boating activities.

APPENDIX I

MARINE-RELATED BUSINESSES

Nantucket and Madaket Harbors
1990

Boat Bulders

Boat Dealers and Brokers
Glyn's Marine
Madaket Marine

Boatyards
Madaket Marine
Island Marine Services, Inc.

Marina
Nantucket Boat Basin

Yacht Club
Nantucket Yacht Club

Marine Engine Repair
Nantucket Land & Sea Co.
Outdoor Power Equipment Co.

Marine Electronics Repair
Mariner Electronics
Alex Medawar Electronics

Marine Contractors
Toscana Corporation

Marine Labs & Research
Town Shellfish & Marine Dept.

Marine Education
University of Massachusetts Field Sta.
Maria Mitchell Association

Marine Retail

Marine Retail
Nantucket Ship Chandlery Corp.
Sunken Ship

Charterers
Endeavor
Fair Tide Charters
Harbor Cruises
Roger Jette

Steamship/Ferry Service
Steamship Authority
Hy-Line Cruises

Sailing Schools, Etc.
Indian Summer Sports
Force Five Water Sports
Little Richards
Nantucket Sail
Harbor Sail Livery
Nantucket Sailing School/Harbor Cruises

Mooring Rentals
Nantucket Shipyard, Inc.
Dennis Metcalfe
George Metcalfe
George Metcalfe, Jr.
Wendy Gary
Peter England
Madaket Marine

Fish & Seafood - Retail
Gliddens Island Seafood
Sayles Seafood
Souzas Seafood

THE TOWN AND COUNTY OF

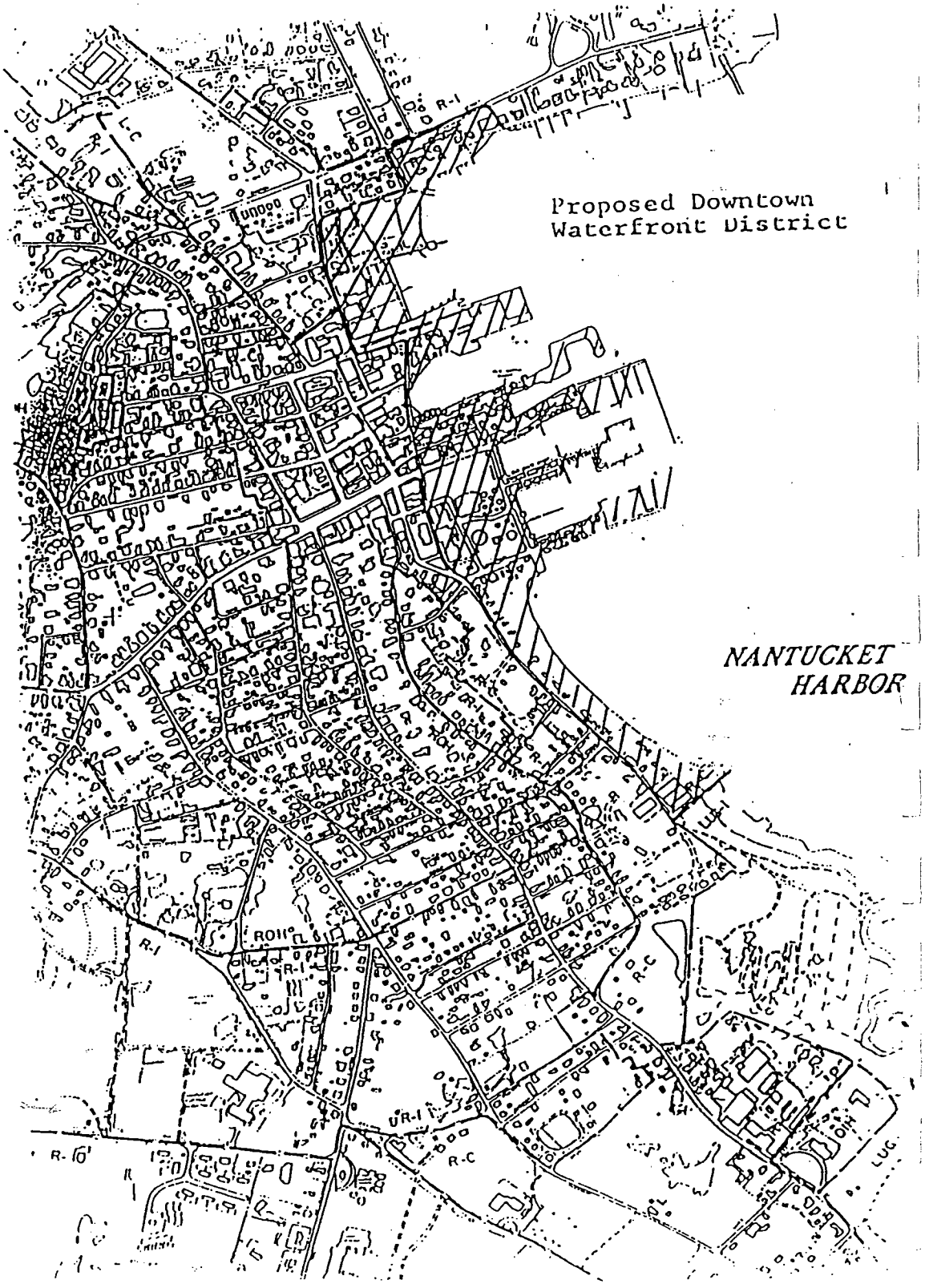
NANTUCKET

MASSACHUSETTS

1987

APPENDIX J

OFFICIAL ZONING MAP



APPENDIX K

POLICIES AND FORMULAS FOR DETERMINING ALLOWABLE NUMBERS OF BOATS

Part 1. Interstate Shellfish Sanitation Conference Marina Policy

In accordance with the recommendation of the National Shellfish Sanitation Program that marinas be considered as potential sources of pollution in shellfish growing waters, the Interstate Shellfish Sanitation Conference adopts the following policy with respect to marina facilities, docking facilities, and other mooring areas.

Definition: A marina is any structure (docks, ramps, floating docks, etc.) which is utilized for docking, storing or otherwise mooring vessels and usually but not necessarily providing services to vessels such as repairing, fueling, security, etc.

1. The Interstate Shellfish Sanitation Conference recognizes that biological and chemical contamination associated with marine facilities may be of public health significance and may result in loss of safe shellfish growing areas.
2. The potential for contamination in the immediate vicinity of a marina will require a prohibited, restricted or conditionally approved classification of that area within the marina proper for the harvesting of shellfish.
3. If waters adjacent to the marina are impacted, additional closed areas (Prohibited, Restricted, or Conditionally Approved) beyond the marina proper will be required. The Interstate Shellfish Sanitation Conference obligates itself to the development of scientific practices for:
   A. Determining the need for additional closed areas beyond the marina proper;
   B. Developing uniform techniques for establishment of closed areas based on any or all of the following factors: Dilution, dispersion, die-off or residence time, hydrography, marina design, and marina usage.
4. The ISSC recommends the use of dilution analysis for marina closure determinations. The dilution analysis should incorporate the following assumptions:
   A. An occupancy rate of the marina.
   B. An assumed rate of boats which will discharge untreated waste.
   C. The rates assumed in A and B, due to significant regional differences, will be determined by the State Shellfish Control Agency in each state. The basis of the assumptions will be documented and should reflect a reliable worse case condition.
   D. 2×10^9 fecal coliforms per person per day.
   E. 2 persons per boat.
   F. Wastes are completely mixed in and around the marina.
   G. The area to be closed is based on a theoretical calculated value of 14 fecal coliforms per 100 ml water.
   H. The area to be closed is based on the volume of water in the vicinity of the marina.

Comments

- Other places where boats are moored or docked will be considered by the State Shellfish Authority or on a case-by-case basis with respect to sanitary significance relative to actual or potential contamination.
- There are significant regional differences in all factors that affect marina pollution loading. Sufficient flexibility must be allowed to account for those differences.

- Research is needed to improve the predicted pollution loading under different hydrographic conditions and to quantify the public health risks (from microbial and chemical contaminants) of consuming shellfish harvested in and around marinas.
- Best Professional Judgement of qualified shellfish sanitarians must be applied to determining adequate restrictions on harvesting in and around marinas.
- It is recommended that following marina or docking facility construction, buffer zone sizing be established using the best technology available to the State Shellfish Control Agency. Implied is that the State Shellfish Control Agency strive to develop the best available technology.

Reprinted from: Interstate Shellfish Sanitation Conference. 1986. Marina Policy. Adopted at fourth Interstate Shellfish Sanitation Conference, 1986.

Part 2. State of Maryland Marina Assessment Model

Methodology

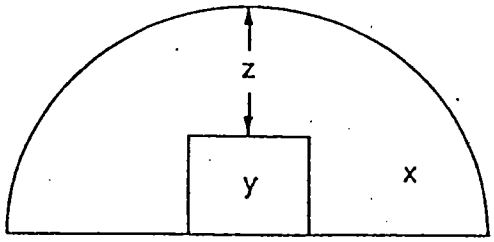
Using the ISSC's dilution analysis, a 13% occupancy rate and a volume of dilution water based on 900 square feet of surface area per boat slip, the fecal coliform concentration within a marina proper can be calculated. Once the concentration within the marina proper is known, the distance beyond the marina necessary to provide a sufficient volume of dilution water to meet a theoretical calculated value of 14 fecal coliforms per 100 ml water can be determined.

Calculations predicting fecal coliform concentrations beyond the marina are predicated on:

1. An average depth of 8.5 feet in the area outside the marina.
2. The volume of available dilution water outside the marina is equivalent to $(x - y) \times 8.5$ feet, where:

   x = surface area within the region formed by a semicircle extending "z" distance beyond the marina's outer perimeter,

   y = surface area of the marina proper as shown below.



3. During the ebbing tide, the total number of fecal coliform bacteria contained in a volume of water equivalent to the top one foot (tidal prism) of the marina proper is evenly dispersed in the water beyond the marina proper.

Discussion

While simplistic in its assumptions, the methodology used in this assessment model represents a realistic approach in that the coliform bacteria in a body of water at the marina are diluted first within the marina confines and then the total number of fecal coliform organisms contained within the volume of water equivalent to the tidal prism (one foot) is dispersed in the area outside the marina on the subsequent tide.

Not considered in this assessment are other influencing factors which individually or collectively may result in an increase or decrease of fecal coliform loading in and around a marina. These factors include:

1. bacteria die-off rates
2. flushing rates/time of travel

3. freshwater inflow
4. wind conditions
5. turbidity
6. salinity
7. water temperature
8. background levels of bacteria
9. time of year
10. shoreline contour/bottom contour

Most of these factors would contribute to additional decreases in fecal coliform concentration and survival. Therefore, the model is conservative.

Conclusion

The presence of a marina may increase the fecal coliform concentration in water. However, increased fecal coliform levels appear significant only within the marina proper. Impact on the bacteriological quality of water immediately surrounding a marina is marginal and rapidly becomes non-detectable as the distance from the marina increases.

Based on the information and the dilution calculation presented in this paper, Maryland has determined that to adequately protect the public from consumption of potentially contaminated shellfish in the vicinity of a marina, the following buffer zone sizes be established:

Marina Size (# slips)	Buffer Zone Size (feet beyond marina)
1-50	100
51-100	150
>100	200

Reprinted from: Maryland Department of the Environment. 1987. Marina assessment model for predicting bacterial loading. Annapolis, MD.

Part 3. State of South Carolina Procedures for Buffer Zone Determinations Marina Boat Docking Facility

The following factors affect water quality impacts of boat docking/marina facilities and the potential for contamination of shellfish from such facilities.

1. Site characteristics (size, shape, topography, geography, and hydrography).
2. Number and size of boats.
3. Usage of boats.
4. Types of docking (resident, community, lease, transit, etc.).
5. Facilities and services available at each docking area (gas, oil, repairs, food, water, supplies, pumpouts, etc.).
6. Types of waste disposal equipment on boats.
7. The existing background water quality conditions.

These factors will be given consideration in determining the necessity of a buffer zone around marinas and/or docking facilities in open Class SA waters. It is extremely difficult to establish specific criteria for these;

therefore, professional judgement must often be applied in reaching a determination as to the necessity of a buffer zone. If, after a careful review of the above factors, the Shellfish Section deems that a buffer zone is necessary, the following procedures will be applied in determining the size of the buffer zone:

1. In the absence of a site specific hydrographic study, a 1000-foot buffer zone will be required around the facility. The point of measurement will be a 1000-foot radius in all directions from all points of the boat docking facility.

2. An applicant may request a reduced buffer zone if a site specific hydrographic study, which is acceptable to the agency, is presented by the applicant and this study indicates that such action is warranted. The hydrographic study must include worse case conditions for dynamic diluting flow and worse case conditions for static volumes for any and all tide cycles including low slack tide and high slack tide. The evaluation will include all inter-relationships of hydrographic factors and coliform bacteria.

   The applicant must consult with the Shellfish Section on his study plans before initiation of a study.

3. When hydrographic studies are used to calculate dilutions and dispersions of fecal coliform, the following assumptions and/or criteria will be used:

   A. There will be 50% boat occupancy assumed at the facility.

   B. Two (2) people will occupy each boat.

   C. Marine Sanitation Device (MSD) malfunction rate:

      1. If the boat docking facility allows only boats with MSD Type III heads (no discharge), the malfunction rate = 10%.

      2. If the boat docking facility allows any other boats with MSD types I, II, and III, the malfunction rate = 50%.

   D. Fecal bacterial loading rate per person/day = 2.0×10^9 (Geldreich, 1966) using a 12-hour tidal cycle day.

   E. All discharges are instantaneous and evenly dispersed.

   F. Background water quality data will be used in determining actual buffer zone lines.

4. In determining the size of the buffer zones, the Shellfish Section will calculate expected fecal coliform concentrations at given distances from the docking facility. These predicted concentrations will be compared to the standard of 14/100 ml and an actual buffer zone line will then be drawn.

5. It will be necessary to protect the shoreline adjacent to the boat docking facilities to prevent contamination from floating and settleable solid matter associated with human waste. This floating matter is easily influenced by tidal currents and wind direction. To ensure this protection, buffer zones may be extended beyond the calculated distance necessary for diluting the waste. This extension will extend to the immediate shoreline unless an acceptable alternative means of shoreline protection is provided to ensure that the potentially contaminating solid fecal matter does not reach the shellfish beds located near the shoreline in the vicinity of the docking site.

   This provides protection at low slack tide and high slack tide with prevailing wind conditions that might push waste to shore. After low and high slack tide conditions, the dynamic tidal current diluting flow then removes this waste and dilutes it according to measured flows and concentrations as established by the hydrographic study.

If a complete evaluation indicates that a buffer zone smaller than 1000 feet provides adequate public health protection, the Shellfish Section will reduce the buffer zone appropriately. Similarly, if the hydrographic survey indicates that a 1000-foot buffer zone is not adequate to protect public health, the size of the buffer zone will be expanded beyond the 1000-foot radius. It will be mandatory that the following conditions are accepted, incorporated and enforced as a part of all certifications or permits.

1. Pumpout facilities for boat sanitary waste are provided.

2. Enforcement procedures are required for those berthing facilities that allow MSD Type III only.
3. A monitoring program will be designed by the agency and implemented to measure conditions in and around the docking facility for parameters affecting the classification of shellfish areas. The applicant must bear sampling and laboratory costs. These include:
   A. Fecal and total coliform in the water.
   B. Fecal and total coliform in shellfish meats.
   C. Temperature.
   D. Salinity.
   E. Heavy metals.

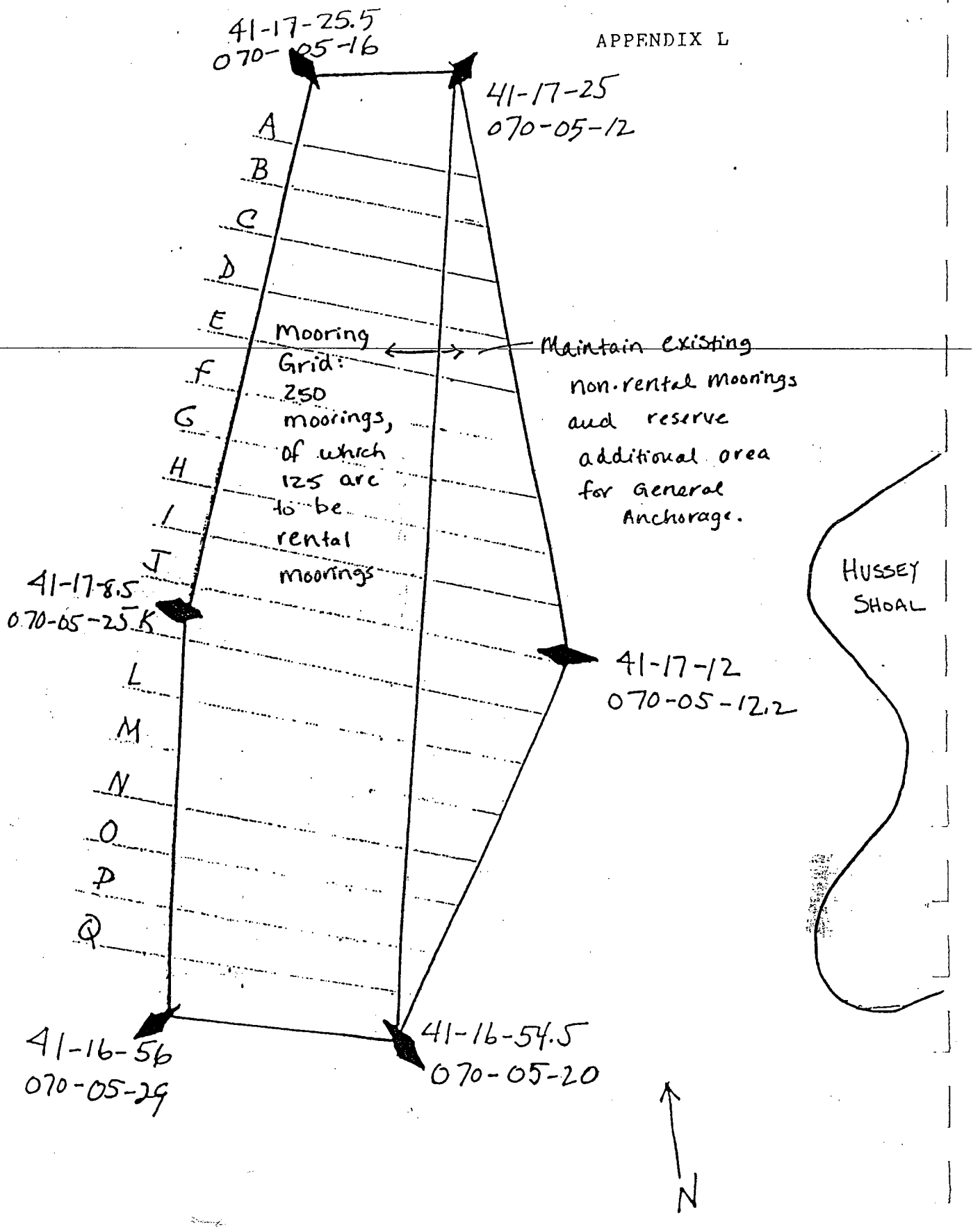
The sample stations shall include but not necessarily be limited to inside the zone, outside the zone, and along the zone line.

The time of sampling, the placement of sampling stations and the frequency of sampling will be established by the Department.

If monitoring results reveal that the established buffer zone is inadequate, the Shellfish Section will increase the size as necessary to protect the public health.

Reprinted from: South Carolina Department of Health and Environmental Control, Shellfish Division. 1985. Technical procedures for buffer zone determinations around boat docking facilities. Columbia, SC.

APPENDIX L



Town of Nantucket, MA Rental Mooring Grid System for rental mooring area within General Anchorage
Sheet 3 of 5 September 1992

AREA #1-GENERAL
AREA #2-CHILDREN'S/EASTON
AREA #3-EASY STREET
AREA #4-SWAINS
AREA #5-SOUTH TOWN PIER
AREA #6-HULBERT AVE.
AREA #7-POLPIS
AREA #8-MADAKET
AREA #9-OTHER(MOMOMOY,SHIMMO,QUAISE,WAUWINET)